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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/888,385	06/26/2001	Dennis G. Thibedeau	10473-784	9489

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EXAMINER

HE, AMY

ART UNIT PAPER NUMBER

2858

DATE MAILED: 07/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/888,385

Applicant(s)

THIBEDEAU ET AL.

Examiner

Amy He

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/26/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-5, 7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Specification

1. The abstract is objected to because it contains informality legal phrase, "comprises" on line 2. Correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 9-10 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sievers et al. (U.S. Patent No: 4,379,990), in view of Hulls et al. (U.S. Patent No: 4,178,546).

Referring to claim 1, Sievers discloses a method for evaluating operation of an alternator comprising:

detecting a frequency component (using ripple detector 88 in Figure 2) of an alternator output signal (column 33, claim 3);
comparing the frequency component of the alternator output signal with a threshold **value** (column 16, lines 11-14) ; and
evaluating operation of the alternator based on a result of the comparing step (column 16, lines 15-17; column 33, claim 2).

Sievers does not disclose the step of comparing the frequency component of the alternator output signal with a threshold **frequency**.

Hulls discloses an automobile alternator test apparatus that test the presence of a fault by detecting a frequency component in the alternator output signal and noting that a faulty ripple frequency is lower than the normal ripple frequency (column 2, lines 1-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sievers to compare the frequency component of the alternator output signal with a threshold frequency taught by Hulls so that a lower ripple frequency as compared to a normal ripple frequency would indicate a fault in the operation of the alternator.

Referring to claim 2, Sievers in view of Hulls discloses the method of claim 1. Furthermore, Sievers discloses detecting the rotational speed of the alternator (column 15, lines 21-22; lines 67-68).

Sievers does not specifically disclose maintaining the rotational speed of the alternator at a predetermined level before detecting the frequency component of the alternator output signal. However, Sievers suggests that if the alternator rotational speed is too low, it may cause an inaccurate detection (column 14, lines 62-66).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sievers to maintain the alternator rotation speed above a certain threshold value before detecting the frequency component of the alternator output signal.

Referring to claim 3, Sievers discloses the method of claim 1 comprising the step of comparing the frequency component of the alternator output signal with a threshold value.

Sievers does not disclose that if the frequency component is smaller than the threshold frequency, the alternator is determined as defective.

Hulls discloses such a method step (column 2, lines 1-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify Sievers to use the step of comparing the frequency component with the threshold frequency, as taught by Hulls, to determine if the alternator is defective.

Referring to claims 4 and 18, Sievers discloses a system for evaluating the operation of an alternator comprising:

a terminal/means (terminal V_s to the left of ripple detector in Figure 2 of Sievers) for receiving an alternator output signal representative of an output of the alternator;

a frequency detection device/means (ripple detector 88 in Figure 2 of Sievers) for detecting a frequency component of the alternator output signal;

a controller/means (the combination of 500 in Figure 6 and logic buffer 86, logic module 102 and Display driver 104 in Figure 2 of Sievers) for comparing the frequency component of the alternator output signal to a threshold **value**, and generating an indication signal based on result of the comparison (column 6, lines 29-32 of Sievers); and

an indication device (outputs of Display driver 104 in Figure 2 of Sievers) responsive to the content of the indication signal for indicating the operation of the alternator.

Sievers does not disclose the step of comparing the frequency component of the alternator output signal with a threshold **frequency**.

Hulls discloses that a faulty ripple frequency is lower than the normal ripple frequency (column 2, lines 1-13).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sievers to compare the frequency component of the alternator output signal with a threshold frequency, as taught by Hulls, so that a lower

ripple frequency as compared to a normal ripple frequency would indicate a fault in the operation of the alternator.

Referring to claims 5 and 19, Sievers in view of Hulls discloses the system of claims 4 and 18, wherein the frequency detection device comprises:

a threshold device for generating a reference threshold (the sliding reference threshold, column 15, lines 67-68; column 16, line 1 of Sievers); and

a comparator (OP AMP 500 in Figure 6 of Sievers) for comparing the level of the alternator output signal with the reference threshold and generating a frequency signal indicating the frequency component of the alternator output signal based on the comparison result (column 16, lines 10-17 of Sievers);

wherein the frequency signal is coupled to the controller (the combination of logic buffer 86, logic module 102 and Display driver 104 in Figure 2 of Sievers).

Referring to claim 9, Sievers in view of Hulls discloses the system of claim 4, wherein the alternator output signal is the voltage generated by the alternator (column 3, line 55 of Sievers).

Referring to claim 10, Sievers in view of Hulls discloses the system of claim 4, wherein the alternator is installed in an automotive vehicle and driven by the engine of the automotive vehicle (column 3, line 51 of Sievers).

3. Claims 6-8, 16-17 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sievers et al. (U.S. Patent No: 4,379,990), in view of Hulls et al. (U.S.

Patent No: 4,178,546), as applied to claims 4, 5, 18 and 19 above, and further in view of Pierret et al. (U.S. Patent No: 5,233,285).

Referring to claims 6-8, and 20-22, Sievers in view of Hulls discloses the system of claims 5-6 and 19-21, wherein the reference threshold is generated based on the combination of alternator rotational speed and the field current.

Sievers in view of Hulls does not disclose a reference threshold that is generated based on the level of the alternator output signal according to a predetermined rule, such as a threshold value between a peak and a valley signal or an average value of the peak and valley signals.

Pierret discloses a reference threshold generated by taking the mean value of the peak and valley signals. (see Figure 5).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sievers in view of Hulls to generate the reference threshold by taking the mean value (a predetermined rule), as taught by Pierret, or by taking the average value, so that more accurate result could be obtained.

Referring to claim 16, Sievers in view of Hulls discloses a system for evaluating the operation of an alternator comprising:

- a terminal (terminal V_s to the left of ripple detector in Figure 2 of Sievers reference) for receiving an alternator output signal representative of an output of the alternator;
- a comparator (OP AMP 500 in Figure 6 of Sievers reference) for comparing the level of the alternator output signal with the reference threshold and generating a

frequency signal indicating the frequency component of the alternator output signal based on the comparison result;

a controller (the combination of 500 in Figure 6 and logic buffer 86, logic module 102 and Display driver 104 in Figure 2 of Sievers reference) for comparing the frequency component of the alternator output signal with a threshold frequency, and generating an indication signal representative of the operation of the alternator based on the comparison result of the frequency component and the threshold frequency; and

an indication device (outputs of Display driver 104 in Figure 2 of Sievers reference) responsive to the content of the indication signal for indicating the operation of the alternator.

Pierret discloses an adaptive threshold device (using mean value circuit in Figure 5 of Pierret et al. reference) for generating a reference threshold based on the level of the alternator output signal according to a predetermined rule.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Sievers in view of Hulls to generate the reference threshold according to a predetermined rule (the mean value rule), as taught by Pierret, so that more accurate result could be obtained.

Referring to claim 17, Sievers in view of Hulls, and further in view of Pierret discloses the system of claim 16, except for a reference threshold generated by taking the average of the peak and valley levels.

Pierret discloses a reference threshold generated by taking the means of the peak level and valley level of the alternator output signal (see Figure 5).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify Sievers to generate the reference threshold by taking the average of the peak level and valley level of the alternator output signal to obtain the threshold values.

4. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sievers et al. (U.S. Patent No: 4,379,990), in view of Hulls et al. (U.S. Patent No: 4,178,546), as applied to claims 4 and 10 above, and further in view of Bertness (U.S. Patent No: 6,331,762)

Referring to claims 11, 12 and 14, Sievers in view of Hulls discloses the system of claim 10.

Sievers in view of Hulls does not specifically disclose a database, accessible by the controller, including threshold frequencies corresponding to more than one vehicle model, as well as threshold frequencies corresponding to more than one engine or alternator rotational speeds.

Bertness discloses a database/memory (memory 40), accessible by the controller (microprocessor 12 or 22), which could be used to store various threshold corresponding to more than one vehicle model, as well as various engine or motor rotational speeds (column 9, lines 54-66; column 8, lines 1-10; column 11, lines 23-30; column 13, lines 23-26; lines 44-49);.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify Sievers to use a database, accessible by the controller, including threshold frequencies corresponding to more than one vehicle model, as well as threshold frequencies corresponding to more than one engine or alternator rotational speed, so that the alternator tester could be used for different vehicle models, different engine or alternator speed.

Referring to claims 13 and 15, Sievers in view of Hulls, discloses the system of claims 10 and 4, except for an alternator output signal, received from a vehicle computer, or a data processing system.

Bertness discloses an alternator output signal, received from a vehicle computer, or a data processing system, installed on the automotive vehicle (the microprocessor, column 15, claim 9).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to further modify Sievers in view of Hulls to obtain an alternator output signal from a vehicle computer installed on the automotive, as taught by Bertness, so that the signals could be processed as desired, before the comparing steps.

Conclusion

Art Unit: 2858

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (703) 305-3360.

The examiner can normally be reached on 8:30am-5pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, N. Le can be reached on (703) 308-0750.

The official Fax numbers for the organization are (703-872-9318) Before-Final and (703-872-9319) After-Final Office actions. Any inquiry of a general nature relating to this application should be directed to the receptionist at (703) 305-4900.

ah

AH
July 29, 2002



N. Le
Supervisory Patent Examiner
Technology Center 2800